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A CANNERS PUBLICATION

DATAMATION

FOR MANAGERS OF INFORMATION TECHNOLOGY WORLDWIDE

FEBRUARY 1, 1991

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Doug Michels,
executive vice president,
The Santa Cruz Operation,
with UNIX System V/386
Open Desktop

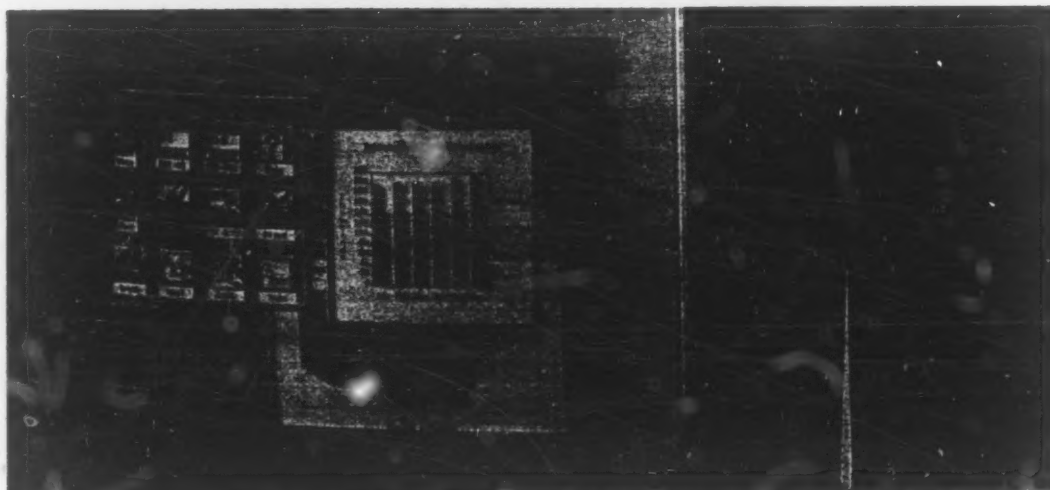


FEBRUARY 1,
1991

DATAMATION[®]

FOR MANAGERS OF INFORMATION TECHNOLOGY WORLDWIDE

VOLUME 37
NUMBER 3



The Santa Cruz Operation's Open Desktop packs a wallop—a high-powered UNIX OS, RDBMS, network management system and X Windows GUI.

COVER STORY

SCO UNIX

UNIX Punch For PCs

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BY PHILIP J. GILL SCO's UNIX System V/386 is a standards-based, multiuser, multitasking, cross-platform operating system for PCs, complete with unlimited memory—everything OS/2 wishes it had.

Cover photography by Chris Springman/Black Star

SPECIAL REPORT

IBM'S MAINFRAME
STRATEGY

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BY JEFF MOAD AND
TED BUNKER
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A CASE PowerHouse For OS/2 65

BY MIKE RICCIUTI With
PowerCASE, Cognos has
introduced an application
development system for OS/2
fully integrated with a fourth-
generation language.

Peter MacKinnon sees
PowerCASE's strength in
tight integration between
data and process modeling.



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OPERATING SYSTEMS

Digital Research Builds A Better DOS 33

BY JOHN McMULLEN Shut out of the big leagues for years, operating system pioneer Digital Research is enjoying quiet success with its intriguing DR DOS 5.0. But directly challenging Microsoft is a gutsy proposition.

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The Simple Solution To Multivendor Networks 39

BY SHARON FISHER Makers of network communications gear are finally teaching their products to speak a common language—the Simple Network Management Protocol—which will make running multivendor networks a less burdensome task.

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Mainframes With A Mac Face 43

BY MARK SCHLACK Making the physical link between Macintoshes and mainframes is no longer that daunting, but making it invisible to users can be. The latest connectivity software replaces clunky terminal emulation screens.

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BY BOB FRANCIS A pioneer in minicomputer software, ASK Computer Systems Inc. is recasting itself as a born-again client/server company. The new software is still six months off, but customers want it now.

DATA MANAGEMENT

Classic Mainframe Software Moves To PCs 50

BY TOM McCUSKER Longtime IBM mainframe users have strong loyalties to some of the utilities they've been using for the past 20 years. Two of their favorites will soon be available on PCs running Windows 3.0 and OS/2 Presentation Manager.

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MINICOMPUTERS

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BY TED BUNKER Forecasting a gloomy future for stand-alone midrange computers based on proprietary operating systems, vendors are dressing up minis as open systems servers and hoping for the best.

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ASK's Kurtzig vows to lead the industry to client/server computing, page 47.



IBM's Conrades wants to help customers use standards, page 54.



HP's Roelandts sees his UNIX systems outselling the HP 3000, page 63.



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When UNIX Makes Sense

The open systems cause is rooted in the concept of choice. Companies buying computer systems should be able to purchase equipment from any supplier, plug it in and have it play without worrying about whether the parts will work together. Conformance to standards will enable all this to happen, the theory goes, benefiting acquirers of open systems technology by providing them with better products at better prices.

At the desktop, much of the industry's attention has been focused on whether OS/2 will make it as a successor to DOS. With nearly 40 million installations, DOS is an entrenched operating system and, as IBM and Microsoft Corp. have learned, it is no simple matter to migrate such a base to the next-generation system, OS/2.

But the real contest for the hearts and minds—not to mention pocketbooks—of PC users may not be simply the answer to the question of whether OS/2 will succeed DOS. There is another choice that many can make. And that choice is UNIX.

Providing that choice to thousands of users is The Santa Cruz Operation Inc.'s UNIX, with its conformance to four important industry standards—the AT&T System V Interface Definition, the IEEE Portable Operating System Interface for UNIX (POSIX) specification, the X/Open Portability Guide Edition 3 (XPG3) and the federal government's C2 security standard. UNIX is a viable alternative to OS/2, but the extent of the viability depends on what you're doing and for how many.

As Santa Cruz executive vice president Doug Michels says in our cover story this issue, "UNIX Punch For PCs," page 26, "Sure, there's a lot of desktop systems out there that don't need UNIX. An MIS manager that wants to deploy 100 PCs for word processing will choose Windows. But those mission-critical applications that run on network devices that communicate with corporate information systems will run UNIX."

And that's the critical point in the emerging world of open systems and choice. It's not enough to have lots of choices. As an IS professional, you must first know what your organization wants to accomplish with its information systems. Then you can decide what system will best meet the objective.

IBM's Mainframe Strategy In Perspective

This year, our now traditional annual report on IBM targets Big Blue's mainframe strategy. Exactly what that strategy is—and what IBM has either provided or promised in the way of products to back it up—couldn't be a more timely area for examination, following the recent introduction of the System/390 mainframe family and considering what IBM has said about the emerging client/server model of computing.

What IBM is trying to do, of course, is reposition the perception of the mainframe from centralized host to large-network server.

For an analysis of how IBM is doing in this regard, turn to our Special Report, "Can Big Blue Reposition Big Iron?" page 54. Written by senior writer Jeff Moad and New England bureau manager Ted Bunker, this report is must reading for any company that already has millions invested in mainframes. And that means you.

David R. Brousell

David R. Brousell, Editor

Coming Next Issue

- A price/performance breakthrough in the mainframe
- The winners of the Products Of The Year contest
- How to take control of your PC assets
- Inside IBM's System/390



SCO: UNIX for the desktop.

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1991

Vendors Cast Mini In A New Role

Forecasting a gloomy future for stand-alone midrange computers based on proprietary operating systems, vendors are dressing up minis as open systems servers and hoping for the best.

BY TED BUNKER

Kenneth H. Olsen, the plain-spoken founder and president of Digital Equipment Corp., stood last fall before a hall packed with anxious investors and made his pitch:

"Minicomputers are not obsolete," he said, and defined a mini as a computer that works fast and doesn't cost a lot. "By any definition of a minicomputer, a workstation is a minicomputer," Olsen said. "If anything is a minicomputer, a server is a minicomputer."

That it has become necessary to delineate the distinguishing characteristics of minicomputers—especially with such flexible definitions—is a symptom of what ails this industry. Growth has slowed to a crawl in the non-UNIX midrange market. Users are demanding open systems, at least as a future option, say analysts and industry observers. And users apparently find the low cost of networked microcomputer-based file servers an attractive alternative to minicomputer solutions. These increasingly powerful microcomputers, when configured as servers, are eating into the low end of the midrange market, while high-powered UNIX-based systems are already nibbling away at the bread-and-butter business of companies like Digital.

A Formidable Competitor

Beset by stagnant or falling sales and minimal profits or staggering losses, the strongest of the traditional minicomputer vendors are racing to reposition their hardware to compete with microcomputers and UNIX-based systems. Struggling to return to the prosperity of past years, these proprietary midrange vendors are adding open systems interfaces to their systems. They are also switching to reduced instruction set computing (RISC) architecture to boost price/

performance. And they are pushing customers to accept minis as network, file and database servers.

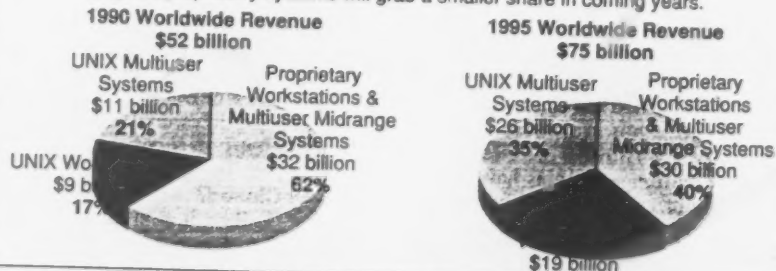
Adding to the pressures on companies like Digital, Data General Corp. and Hewlett-Packard Co. is IBM's reemergence as a serious competitor in the midrange market. Since 1988, IBM's AS/400 has grown into a \$12 billion-plus business, catapulting the Armonk, N.Y.,

computer giant into the midrange market lead. But most AS/400 units shipped have replaced older IBM equipment, primarily System 3X machines. As analyst Peter Schay of the Gartner Group Inc. points out, that's a zero-growth business.

Robert J. LaBant, IBM vice president and general manager of the Application Business Systems division, is quick to say that AS/400 wins are not all System 3X

Proprietary Midrange Market Fades Slowly...

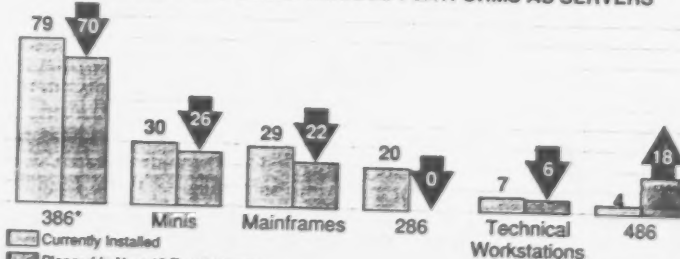
Although the worldwide market for midrange systems continues to grow, proprietary systems will grab a smaller share in coming years.



As Computer Users Look To 486-Based Servers

The use of 486-based computers as servers is expected to soar in the next 12 to 18 months.

% RESPONDENTS USING VARIOUS PLATFORMS AS SERVERS



*Currently includes 52% dedicated servers, 27% nondedicated PCs. Planned use includes 47% dedicated servers, 23% nondedicated PCs.

Source: Business Research Group

SYSTEMS MINICOMPUTERS

replacements: a sizable portion of total AS/400 sales are "win backs," he says, in which the AS/400 is replacing a box made by some other vendor. And, he says, most IBM System 3Xs replaced by AS/400s are not retired, only moved to a different part of the customer's operation. Eventually, he expects those systems to be replaced by AS/400s, too.

LaBant also says 75% of the AS/400s installed thus far have personal computers attached. This is a good precedent for IBM, says LaBant, because in the future, "our focus will be on making the AS/400 a database server."

Both IBM and Digital are expected to prosper as midrange systems vendors during the 1990s, but for different reasons. Digital has announced plans to add open systems interfaces to its proprietary VMS operating system. This move, plus the VAX's top-rated connectivity characteristics, will help the Maynard, Mass., company position its VAX minis as open systems servers. Meanwhile, the AS/400 leaves unchallenged Digital's dominance in technical markets for multiuser midrange systems.

But IBM's midrange system has been winning greater and greater acceptance among commercial users, and the company is integrating the AS/400 line with its various enterprise-wide computing architectures. Furthermore, by replacing System 3Xs and adding to existing AS/400 capacity, IBM will buttress its midrange business for years to come.

The Case Of The Disappearing Mini

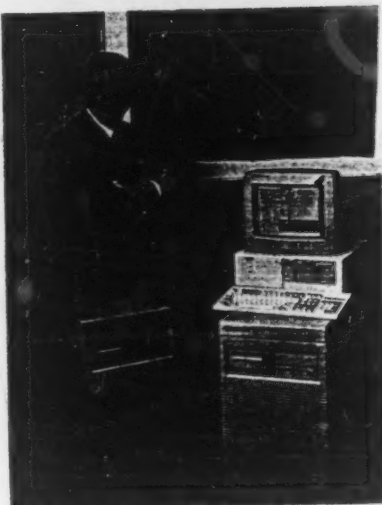
Ultimately, however, even IBM may have to face what other makers of proprietary midrange systems have recognized: the proprietary midrange system is weakening, pummeled by low-cost, networked PC-based file servers.

LaBant and other vendors counter that general-purpose midrange systems make better, more flexible LAN servers than low-cost micros based on Intel Corp.'s 80386 and 80486 microprocessors. The advantages of higher throughput, multiuser functionality and better transaction-processing capability outweigh price differences that can exceed 10 to one, vendors argue.

Some users are buying that argument. But many are not.

"The midrange machine is really dead," says Jerry Ely. Ely, director of information systems at Merrill Lynch & Co. Inc. in New York City, believes "the word minicomputer is going to disappear."

Still, for all the handwringing about



HP'S ROELANDTS: UNIX-based systems are outselling the HP 3000 proprietary models.

the weakening mini market, survey data indicate the move away from the proprietary mini may be taking place at a much slower rate than the accompanying hype would have you believe. In one survey of 100 IS managers at *Fortune* 1,000-sized companies, the market research arm of Cahners Publishing Co., Business Research Group, asked respondents if they thought microcomputers would replace minicomputers in their organizations. Fifty-nine percent of the respondents said no. And 55% said they didn't believe micros could duplicate mini functions.

In another survey, Boston-based securities firm Cowen & Co. asked DATAMATION readers whether they would base new applications on proprietary operating systems or on UNIX. Of 4,062 total respondents, 75% of IBM proprietary systems users, 69% of Digital users and 56% of HP users said they would stick with proprietary systems.

Open Or Closed?

At IBM, LaBant is aware of this quiet user loyalty to proprietary systems. The AS/400 chief says he sees no great urgency to add open systems components, like X/Open Co. Ltd.'s Portable Operating System Interface For UNIX (POSIX), to OS/400. He says the lack of open-system features ranks among the least significant objections that potential AS/400 customers raise. But, despite LaBant's words, the company has outlined plans to add Open Systems Interconnect (OSI) protocols to OS/400. And a version of AIX, IBM's UNIX derivative, is being readied for the midrange line.

To some degree, IBM is straddling the fence—upon which Digital and HP also teeter—that separates the need to reassure users of proprietary technology that their investments are safe and the need to forge into the market for standards-

based equipment and software. LaBant claims there is little midrange competition from either of IBM's microprocessor-based lines, the PS/2 and the RISC System/6000. For the time being at least, LaBant says, IBM's plans for the AS/400 center on extending the processing power of the system. Although attempting to characterize the AS/400 as a server, IBM is sticking to a traditional minicomputer approach more so than any other leading mini maker.

Digital is also adding power to its VAX line with a plan to reconfigure all future VAXs as RISC-based machines, says Bob Gloriosio, vice president of information systems. In fact, Gloriosio points out, much of the 9000 is already designed using a RISC architecture. Digital is banking on its latest VAX 9000 line to push into the realm of mainframe computing, to give VAX/VMS users more power without requiring a switch in vendors.

In the traditional midrange arena, Digital is positioning the VAX 6000 line as transaction-processing or production systems and as general-purpose servers.

At the same time, Digital is adding POSIX to its VMS operating system, which, Demmer says, should make it possible to run UNIX-based applications on VMS with little or no modification.

Hewlett-Packard has already moved both its proprietary HP 3000 and its HP/UX UNIX-based 9000 systems to a single, RISC hardware design—and the company is in the process of moving its workhorse HP 1000 real-time system to RISC, as well. Wim Roelandts, HP's vice president and general manager of the computer systems group, says the UNIX-based systems are outselling the HP 3000 proprietary models. Revenues generated by the HP 9000 rose 62% from 1989 to 1990, while those brought in by the 3000 grew by only 10% in that same period. Despite the precipitous growth of HP's UNIX-based line, Roelandts says, the battle for market share among UNIX vendors is not over: "[It hasn't] even started, as far as I'm concerned."

Will these strategies work? Gartner's Schay thinks Digital's proprietary systems will continue to hold a big piece of the midrange market because they function well as PC LAN servers. In his view, that's the key to success for midrange systems. He says IBM will continue to dominate the midrange market thanks not to the AS/400, which will "hold its own," but to its latest rising star, the RS/6000 line of RISC workstations and servers. As for other proprietary systems, he says: "All that stuff is fading."

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MARKET INSIGHTS

AN ANALYSIS OF ECONOMIC TRENDS

Been Down So Long It Looks Like Up

BY MADELINE FRANCHI
Cahners Economics

The DATAMATION Information Systems Performance Indicator (ISPI) hasn't veered very far from its expected downward course. Taking into account the latest data from September 1990, the indicator had fallen to 97.96—down almost a point from August's 98.8 reading. The computer stock price index, which dropped from 168.7 in August to 162.7 in September, was the main factor pulling the indicator down.

Manufacturers of IS equipment continued to reduce inventories in September, which also kept the indicator heading down. Inventories fell from year-ago levels for five consecutive months through September, a trend surpassed only twice during the past 20 years—during the 1976 general economic recession and the 1986 computer industry slump.

But on the up side, new orders for IS equipment helped shore up the ISPI. September new orders recovered strongly from the one-month setback in August and advanced 1.5% over the level recorded in September 1989. In particular, orders for computers and office equipment rose by 26% from August to September and were almost 3% higher than they were in August 1989.

We expect the ISPI to rise, albeit weakly, through the early part of this year; the indicator will most likely have reached its low point in late 1990.

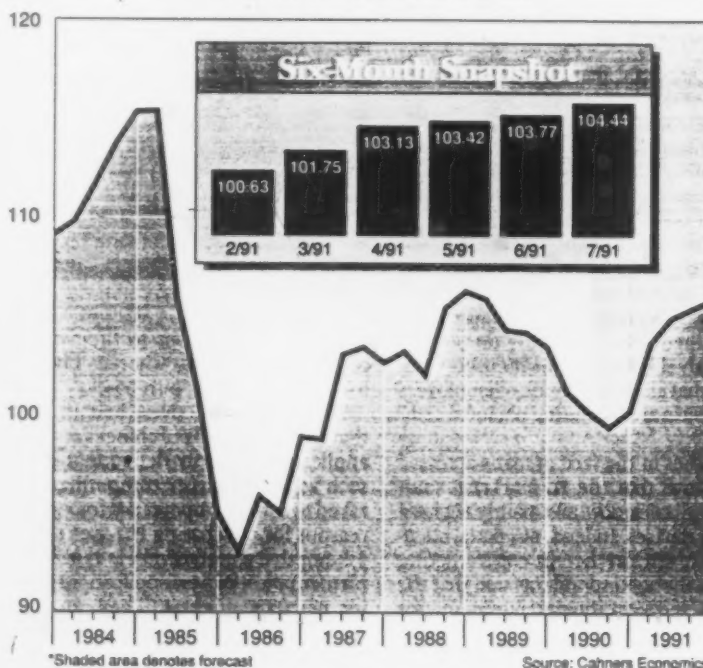
Methodology

The DATAMATION Information Systems Performance Indicator tracks the economic health of the IS industry. Cahners Economics developed this indicator, which is based on weighted moving growth rates for five statistics: (1) IS inventory, (2) new IS orders, (3) average weekly hours of computer industry employees, (4) Standard and Poor's Computer Systems Stock Price Index and (5) contracts and orders for plant and equipment.

For more information on Cahners Economics's forecasting services, including seminars, newsletters and database diskettes, phone Dan Bochan at (617)-630-2105, fax him at (617)-630-2100, or write to him at Cahners Economics, 275 Washington Street, Newton, MA 02158.

The IS Performance Indicator

For IS, 1991 will be the year to watch.



	Sept. 1990	August 1990	% Change 8/90-9/90	Sept. 1989	% Change 1989/1990
■ Information-Processing Equipment					
Shipments (SA, \$ billions)	10.03	9.81	2.2	9.62	4.2
New Orders (SA, \$ billions)	10.43	9.41	10.8	10.27	1.5
Unfilled Orders (SA, \$ billions)	29.20	28.80	1.4	28.44	2.7
Inventory (SA, \$ billions)	21.40	21.40	0.0	21.98	-2.7
■ Computer Production Workers					
Employment (NSA, thousands)	272.9	273.3	-0.1	290.7	-6.1
Average Weekly Hours (monthly avg.)	42.2	41.4	1.9	42.0	0.5
■ Stock Index					
S&P's Computer Systems Stock Price Index	162.7	168.7	-3.6	193.1	-15.7
■ Contracts & Orders					
New Plant & Equipment (SA, \$ billions)	42.24	39.4	7.2	41.61	1.5

SA= seasonally adjusted;
NSA= not seasonally adjusted

Sources: U.S. Commerce Dept. and Standard & Poor's;
forecasts: Cahners Economics

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MARKET INSIGHTS

A SURVEY OF TECHNOLOGY TRENDS

Corporate PC Sales Will Stay Strong

BY WARREN CHILDS
Business Research Group

Despite vendors' fear that the boom in PC sales ended long ago, the latest survey of the DATAMATION Technology Implementation Panel reveals that corporate America's need for personal computers continues to grow.

When asked to indicate what percentage of their professional, office and administrative staff currently have PCs, less than half of our panel members said 50% or more. A strong 54% said more than half of their staffs currently do not use PCs. Only 11% of panel members reported that all, or nearly all, of employees at their sites are now using personal computers.

This flies in the face of many analysts' contentions that the PC market is saturated and sales now are mainly replacement purchases. Indeed, our panel members go even further in contradicting these analysts. Respondents said that the majority (68%) of their PC purchases this



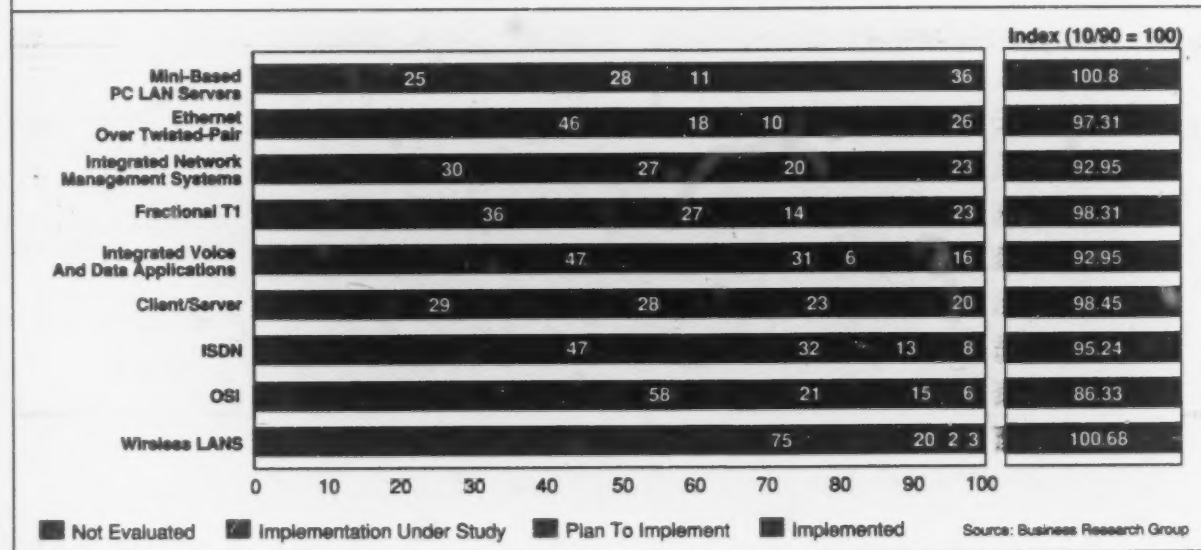
year will be additions to their existing complement of PCs, whereas only 25% will be replacement purchases.

Panel members overwhelmingly said that the additional purchases are for new applications heavily dependent on PCs, such as client/server computing. When asked to rank in importance four possible reasons for purchasing PCs over the next 12 months, panel members ranked "implementation of new applications requiring new PCs" highest. They ranked the

need to "provide PCs for an expanding work force" and the need to "replace PCs with higher performance ones to increase productivity" closely as second and third. "Replacing PCs to comply with corporate standards" was ranked a distant fourth.

For more information, call Nancy Finn at (617)-964-6204, fax her at (617)-558-4402 or write to her at Business Research Group, 275 Washington Street, Newton, MA 02158.

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